

**Product Information TFP-RA, TFP-RK**

**FOOD**

# Pipe Contact Temperature Sensor



**Application**

- temperature measurement on pipe surfaces
- for pipe diameters from DN10 to DN250
- no contact to the product of the sensor
- additional mounting with opening the process

**Application Examples**

- measurement monitoring on pipes with diameter DN10
- measurement on pipes with pig cleaning

**Hygienic Design / Process Connection**

- food compatible materials according to FDA
- CIP-/ SIP-cleaning up to 150°C

**Options / Accessories TFP-RA**

- with or without clamp fitting available
- other cable length
- transmitter (for rail mounting)

**Options / Accessories TFP-RK**

- ex-factory cable with M12-plug
- transmitter (for rail mounting)
- fixed cable connections PVC, PTFE



**Specification TFP-RA**

Materials	stainless steel	303 (1.4305)
Temperature range		-50...250°C
Sensing resistor	acc. to DIN ITS 90	1xPt100 class A
Electr. connection	fixed cable 3m	PTFE 4x0,14mm <sup>2</sup>
Type of protection		IP69K

**Specification TFP-RK**

Materials	sensor	platinum-chip
	sensor housing	PVDF
Temperature range		-30...150°C
Sensing resistor	acc. to DIN ITS 90	1xPt100 class A
Electr. connection	cable junction	M12-plug-in
		303 (1.4305) 4pol.
Type of protection		IP69K

**Specification Transmitter**

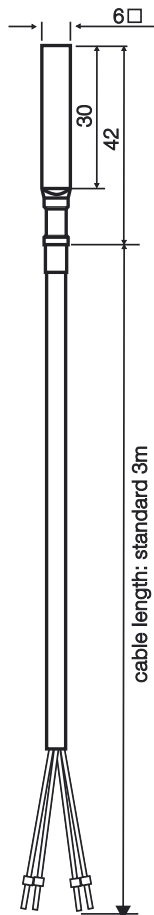
See product information VMU-2 (for rail mounting)

**Order Code**

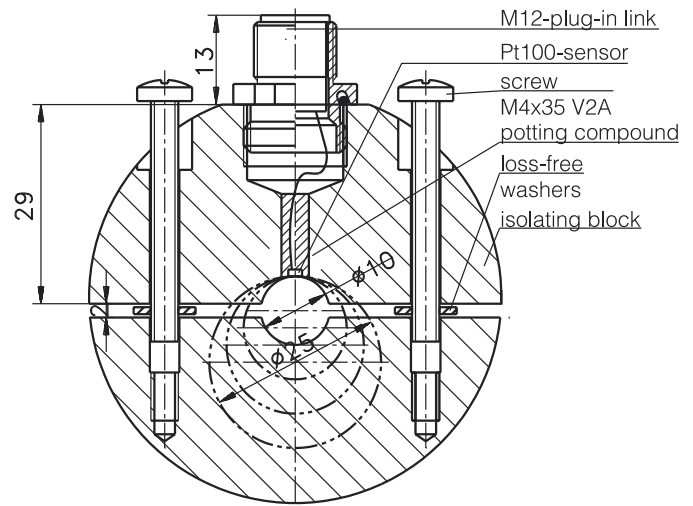
Temperature sensor	Pipe clip up to DN/ nominal width in mm	Transmitter	Ranges	Electrical connection	Other options
TFP-RA	without*, 100, 250	without* VMU-2 (rail mounting)	free adjustable	3m Tefloncable*	
TFP-RK	10...25mm must be specified!			M12* fixed cable**	M12-PVC/4-5m M12-PVC/4-10m

\* Standard, no specification needed.  
\*\* Specify cable length.

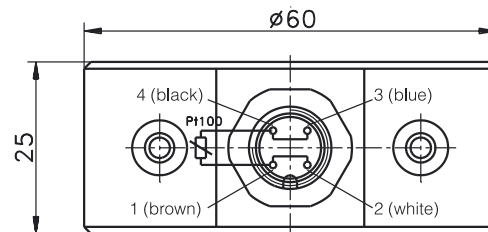
## Dimensioned Drawing



TFP-RA



connecting plan (top view)



TFP-RK

## Informations about Pipe Contact Measurements

When mounting a temperature sensor to the side of a pipe or a vessel, this temperature sensor will measure the temperature of the surface. However, this temperature is a mixed temperature of medium and ambient. From the middle of the pipe to the side there exists a temperature gradient, which depends of a lot of factors and can not be specified exactly. When the medium temperature is about 100°C a difference of several Kelvin can be the result of this effect (see diagram).

Factors affecting the temperature gradient:

- quality of coupling sensor to pipe (coupling paste)
- temperature of the medium
- flow speed of the medium
- parameters of medium (heat conductivity, calorific capacity)
- ambient temperature
- flow speed of ambient air
- pipe thickness
- pipe material
- isolation of pipe and sensor

To get the best measurement that is possible it is absolutely necessary to put **coupling paste** between sensor element and pipe!

